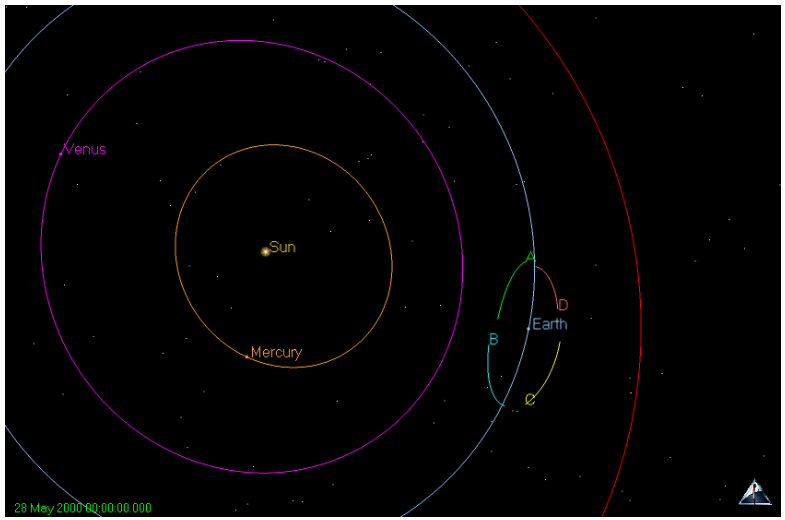
# Space Weather Diamond




**An alternative to the Sentinels and Geostorms concepts, Space Weather Diamond offers 10X the L-1 warning of solar wind disturbances**

- St. Cyr et al., *Journal of Atmospheric and Solar-Terrestrial Physics*, **62**, 1,251-1,255, 2000.

- **Fundamental Question**
  - What are the physics of the propagation and evolution of large-scale structures in the heliosphere?

- **Why is this question important?**
  - To improve significantly the lead time of space environment predictions (geomagnetic storms, energetic particle events, spacecraft charging, and human exploration)
- **Science Objectives**
  - Identify the structures of heliospheric features, including both radial and transverse gradients
  - Separate spatial effects from temporal effects
- **Mission Description**
  - Four spin-stabilized spacecraft in eccentric heliocentric orbits, phased so that they appear to surround Earth
  - Monitor spacecraft nearest Sun continuously for space weather prediction; the remaining three spacecraft operate autonomously and record data for periodic playback
- **Measurement Strategy**
  - Solar wind plasma, interplanetary magnetic field, radio burst detector, and energetic particle sensors on all spacecraft
  - One spacecraft also carries a white-light heliospheric mapper
- **Technology Requirements**
  - Heritage designs available today
  - Minimal risk for significant return